



## Jurisprudence Section - 2016

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### **F30 Limitations of Current DNA Testing: Information That May Not Be in Reports**

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After attending this presentation, attendees will better understand: (1) other important information that may not be provided in laboratory final reports; (2) the limitations of current DNA testing results and conclusions; and, (3) additional questions that may be asked of analysts or additional information that may be available in the testing laboratory case file and technical manuals to aid in understanding the test results and their meaning.

This presentation will impact the forensic science community by providing information that may assist law enforcement, attorneys and their clients, judges, analysts, consultants, and the trier of fact in evaluating and understanding the limitations of current DNA testing and the laboratory final reports.

When forensic science testing is completed, the data are reviewed and interpreted, comparisons are made, and reports are issued. Generally, all reports provide some basic summary of the work performed and the conclusions reached; however, it is unlikely that even lengthy or detailed reports provide all the information that may be needed by all parties to understand what testing was actually performed and what the data obtained specifically mean in relation to the case being investigated and prosecuted. For example, reports often do not include information regarding negative tests, errors or re-testing that occurred, and whether any corrective actions were needed involving the case. Reports may also be incomplete such that all findings and all assumptions that were used during the testing and interpretation of the data may not be included. Furthermore, the language used in reports by different laboratories (or even departments within a laboratory) may have different meanings, leading to misunderstanding and misinterpretations by the users of the reports.

In addition to reviewing the information in the laboratory report, it is equally important to understand the limitations of the testing performed, the data obtained, and the conclusions reported. This is particularly true of DNA testing results that are issued from laboratories today. With the increase in recent years in the vast types of evidence samples routinely collected and submitted to DNA testing laboratories and the significant increase in the sensitivity of the Short Tandem Repeat (STR) testing assays, current DNA testing often results in incomplete mixed DNA profiles that are difficult to interpret. The reliability of the data and the relevance of the sample to the case may often come into question. Unlike the single-source DNA profiles obtained from visible biological stains in the early years of DNA testing in which essentially the identification of the source of the sample may be concluded and reported, many of the DNA test results being reported today are mixtures from three or more individuals (i.e., complex mixtures) for whom a very small number of cells and DNA were present. Prior methods for providing meaningful evaluations of the strength of the DNA evidence have been misused, while others are being developed and introduced in the court. Many different questions arise regarding the meaning and value of the DNA test results obtained from these types of samples.

To obtain information important to the case and to further assess the meaning of the data obtained, it may be necessary to review the laboratory case file and the laboratory standard operating procedures manuals. Critical questions should be asked of the analyst and all handlers of the evidence to assess the events that occurred while the evidence was processed at each step throughout the chain of custody and to learn of any problems that may have occurred during the testing. This presentation will focus on the issues outlined above, the additional information that may be needed in a case, and the questions to ask in order to understand the limitations of current DNA testing procedures and reporting.

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#### **DNA, Limitations, Reports**